REMARKS

This is in response to the Office Action dated June 05, 2006. In the Office Action, the Examiner rejected Claims 42 and 45 under 35 U.S.C. 102(e) and Claims 1-4, 6-10, 12, 14-15, 47-50, 52-56, 58, 60-61, and 63 under 35 U.S.C. 103(a), and allowed Claims 17-41, 43, 44, and 46. The Examiner also indicated Claims 11, 13, 16, 57, 59 and 62 would be allowable if rewritten into independent form.

Summary

Claims 42 and 45 were rejected under 35 U.S.C. 102(a) as being anticipated by Ammer et al. The rejection is respectfully traversed because Ammer et al. fails to teach a transmission LO amplifier downstream and in communication with a first output of the power divider and an output communicated to an input of the transmission mixer and a receiver LO amplifier downstream and in communication with a second output of the power divider and an output communicated to an input of the receiver mixer. The Examiner was silent about the transmission LO amplifier and the receiver LO amplifier as claimed.

The rejections over Claims 2-6, 48-52, and 60-61 are also traversed because Claims 1 and 47 which they are dependent upon are patentable.

Claims 1, 7-10, 12, 47, 53-56, 58, 63 were rejected under 35 U.S.C. 103(a) as being unpatentable over a sole reference Ammar et al. (2004/0203528). The rejection is respectfully traversed because:

1) Ammar et al., by specifically teaching an intermediate frequency board 48 (second MMIC device as recited by the Examiner) for up-converting a low frequency transmitter signal is up-converted to a **intermediate frequency** signal **before entering the transceiver board** 50 (the first MMIC device as recited by the Examiner), **teaches away from "a first MMIC device for mixing the data stream at a baseband frequency into a resultant data atream at an upconverted E-band frequency** as claimed in Claims 1 and 47;

2) In addition to the E-band transceiver and dividing the LO signal to the second downconverter in the third MMIC device, **Ammar also fails to** teach **the LO signal circuit included in the first MMIC device**. The Examiner discusses the dividing function of the

third MMIC device, but is silent about the dividing function provided by the first MMIC device;

3) Ammar et al. fails to teach "the second MMIC device comprising a multiplier". The Examiner cited paragraph [0034] of Ammar et al. to read on the second MMIC device. As understood, paragraph [0034] teaches a frequency synthesizer circuit 52 generating all required local oscillator signals using a voltage control circuit and forward oscillator signals to a **multiplexer circuit 87, which is not a multiplier** as claimed; and

4) As acknowledged by the Examiner, Ammer fails to teach the E-band transceiver and dividing the LO signal to the second downconverter in the third MMIC device. Ammer et al., by specifically disclosing using a separate oscillator 83 to feed the LO signal to the downconverter 82b in the third board 48, fails to show any desirability of dividing the LO signal;

Therefore, Ammer does not only fail to expressly or inherently teach every element as claimed in Claims 1 and 47, but also fails to provide any suggestion or motivation for incorporating the missing elements as claimed. Claims 1, 47 and their dependent claims are thus all patentably distinguishable over Ammer et al.

Amendment

The specification is amended to correct the obvious typo without introducing new subject matter.

In Claims 42 and 45, the transmission and receiver LO amplifiers downstream the first and second outputs of the power divider have been disclosed in paragraph [0047] of page 12 and clearly shown in Figure 2 of the specification as originally filed. Therefore, no new subjection has been by the amendment, and the entry of amendment is respectfully solicited.

Rejection Under 35 U.S.C. 102(e)

Claims 42 and 45 were rejected under 35 U.S.C. 102(e) as being anticipated by Ammer et al.

The Examiner indicated that:

"Regarding claims 42 and 45, Ammar discloses a MMIC device (transceiver board 50) comprising: a transmitting circuit comprising a mixer (73), a amplifier (76); a receiving circuit comprising a LNA, a filter, a mixer; and an LO circuit (synthesizer 54) comprising a power divider (89) for dividing an LO signal to provide the LO signal to an input of the TX mixer and an input of the RX miser (fig. 2, paragraphs 39, 41-43)."

Firstly, as it is clearly shown in Figure 2, the MMIC device, that is, the transceiver board 50 as disclosed by Ammar et al. does not comprise the LO circuit, that is, the synthesizer 54. As a matter of fact, Ammar et al. specifically disclose that the transceiver board 54 and the synthesizer 50 are two different devices made on two different boards. Therefore, Ammar et al. does not disclose a MMIC device comprising the transmssion and receiver circuit also comprises the LO signal circuit.

Secondly, the Examiner does not discuss the transmission and receiver LO amplifiers as claimed.

As it has been clearly shown in Figure 2 of Ammar et al., the power divider (the splitter 89) recited by the Examiner has one output directly connected to the transmission mixer 73. In the transmission circuit 42, there exists a VGA 72 and an amplifier 75. The VGA 72 communicated to the input of the transmission mixer 73 is not downstream the power divider 89, while the amplifier 75, though downstream the power divider 89, is communicated to the output of transmission mixer 73, not the input thereof. Therefore, Ammar et al. fails to teach the transmission LO amplifier as claimed in Claims 42 and 45.

Similarly, although Ammar et al. discloses a VGA 82 and an LNA 79 in the receiver circuit 44, the VGA 82 downstream the power divider 89 is communicated to the output of the receiver mixer 81, while the LNA 79 communicated to the input of the receiver mixer 81 is not downstream the power divider 89. Therefore, Ammar et al. also fails to teach the receiver LO amplifier as claimed in Claims 42 and 45.

Therefore, Ammar et al. does not only fail to teach the MMIC circuit that comprises the transmission circuit and the receiver circuit also comprises the LO signal circuit, but also fails to teach the transmission and receiver LO amplifiers as claimed in Claim 42 and 45. Claims 42, 45 are thus patentable over Ammar et al.

Rejection Under 35 U.S.C. 103(a)

Claims 1, 7-10, 12, 47, 53-56, 58, 63 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ammar et al. (2004/0203528).

Claims 1 and 47

The rejection over Claims 1 and 47 is respectfully traversed because:

1) **Ammar et al. fails to discloses a first MMIC device for receiving a data stream input at a baseband frequency:**

In lines paragraph [0041] and Figure 2, Ammar et al. specifically discloses the low frequency transmitter signal is up-converted to a proper **intermediate frequency (IF)** before being received by the transmitter (73, 74, 76, 76) of the transceiver board 50 (the first MMIC device as referred by the Examiner). Evidently, what the first MMIC device receives is the intermediated frequency which has been mixed with a local oscillation (LO) signal, not the data stream at the baseband frequency as claimed in Claim 1 and 47. Therefore, Ammar et al. fails to disclose the first MMIC device for receiving a data stream input **at a baseband frequency** as claimed;

2) **Ammar et al. fails to teach a first MMIC device comprising an LO signal circuit for dividing a received LO signal:**

In paragraph [0043], Ammar et al. discloses that "the frequency synthesizer circuit 52 (which is the third MMIC device as referred by the Examiner) generates all required local oscillator signals, ... A splitter 89 permits splitting of signals to the respective transmitter or receiver circuit chains 42, 44". As the LO signal has been split by the third MMIC device, there is no desirability for Ammar et al. to incorporate a LO signal circuit in the first device.

3) **Ammar et al. fails to teach a second MMIC device comprising a multiplier:**

The Examiner indicated that Ammar discloses a millimeter wave transceiver comprising a second MMIC device (board 54) comprising a multiplier for receiving an LO signal at a reference frequency and multiplying the LO signal to a frequency (paragraph 43).

Paragraph [0043] of Ammar is quoted as follows:

"*The frequency synthesizer circuit 52 generates all required local oscillator signals using a voltage controlled oscillator circuit, which can be phase locked to a crystal oscillator. The circuit 52 includes a main oscillator circuit 86 that forwards local oscillator*

*signals to a **multiplexer** circuit 87 and bandpass filter 88 for rejecting unwanted and spurious signals. A splitter 89 permits splitting of signals to the respective transmitter or receiver circuit chains 42, 44".*

Nowhere can the Applicant find the teaching or suggestion of using a multiplier in the synthesizer circuit 52 at all. The synthesizer board 52 includes a multiplexer circuit 87, which, as it is well known in the art, is a device or circuit for encoding two or more data sources into a single channel, not a device to multiply the frequency of a signal. The Applicant respectfully requests the Examiner to point out the specific paragraph of Ammar et al. that teaches the multiplier as claimed. Otherwise, even if the frequency synthesizer circuit 52 or the frequency synthesizer board 54 can be referred as the second MMIC device as recited by the Examiner, such second MMIC device does not include a multiplier as claimed. Moreover, there is no suggestion or motivation for one of ordinary to modify the synthesizer board 54 by incorporating a multiplier.

4) Ammar et al. fails to teach a third MMIC device comprising an LO generation circuit for generating an LO signal:

As discussed above, Ammar et al. specifically teaches that "**The frequency synthesizer circuit 52 generates all required local oscillator signals**". As all the required local oscillator signals are generated by the second MMIC device (the frequency synthesizer circuit 52 as referred by the Examiner), Ammar et al. teaches away from "a third MMIC device comprising an LO generation circuit for generating an LO signal" as claimed in Claims 1 and 47.

As Ammar et al. does not only fail to teach every element as claimed, but also fail to show any desirability of incorporating the missing elements as claimed in the independent Claims 1 and 47, Claims 1 and 47 and their dependent Claims are thus patentable over Ammar et al.

In view of the foregoing, the application is believed to be in condition for allowance. Entry of the amendments and issuance of a Notice of Allowance are therefore respectfully requested. Should the Examiner have any suggestions for expediting allowance

of the application, please contact applicant's representative at the telephone number listed below. If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: July 3, 2006 By: _____

Customer No.: 007663

Bruce B. Brunda
Registration No. 36,224
STETINA BRUNDA GARRED & BRUCKER
75 Enterprise, Suite 250
Aliso Viejo, California 92656
Telephone: (949) 855-1246
Fax: (949) 855-6371

T:\Client Documents\Norte\525A:JW